



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
ENVIRONMENTAL SCIENCE CENTER  
701 MAPES ROAD  
FORT MEADE, MD 20755-5350

ORIGINAL  
(Red)



SEMS DocID 2334408

DATE : December 21, 2000  
SUBJECT: Region III Data QA Review  
FROM : Fredrick Foreman  
Region III ESAT RPO (3ES20)  
TO : Chris Wagner  
Regional Program Manager (3HS31)

Attached is the inorganic data validation report for the Albemarle Dump #2 site (Case#: 28712, SDG#: MC02Z0) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

The format of this validation report has changed. It will no longer include copies of the CLP forms. This change was driven in part by a need to reduce the amount of paper utilized. I will continue to retain copies of the CLP forms and they will be available upon request.

If you have any questions regarding this review, please call me at (410) 305-2629.

Attachment

cc: [Redacted] (RAI)

WA File: 0300402 TDF# 1163

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE

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LOCKHEED MARTIN

DATE: December 6, 2000

SUBJECT: Inorganic Data Validation (Level IM1)  
Site: Albemarle Dump #2  
Case: 28712 SDG: MC02Z0

FROM: [redacted] [redacted]  
Senior Data Reviewer Senior Oversight Chemist

TO: Fredrick Foreman  
ESAT Regional Project Officer

### OVERVIEW

Case 28712, Sample Delivery Groups (SDG) MC02Z0, from the Albemarle Dump #2 site consisted of six (6) aqueous samples analyzed for total metals by Chemtech Consulting Group (CHEMED). The sample set contained no field Quality Control (QC) samples. The samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM04.1 through the Routine Analytical Services (RAS) program.

### SUMMARY

All samples were successfully analyzed for all Target Analyte List (TAL) parameters. Areas of concern with respect to data usability are listed below.

Validation of data was performed according to Innovative Approaches for Validation of Inorganic Data, Level IM1, which includes review of all Forms but excludes review of raw data.

Data in this case have been impacted by outliers present in laboratory blanks as well as ICP serial dilution and Contract Required Detection Limit (CRDL) standard analyses. Details of these outliers are discussed under "Minor Problems" and qualified analytical results for all samples are reported on Data Summary Forms (DSFs).

### MINOR PROBLEMS

Continuing calibration and/or preparation blanks had negative values greater than the absolute values of Instrument Detection Limits (IDLs) for cadmium (Cd) chromium (Cr), lead (Pb) and thallium (Tl). Quantitation limits for these analytes in affected samples may be biased low and have been qualified "UL" on the DSFs.

Continuing Calibration (CCB) Blanks had reported results greater than Instrument Detection Limits (IDLs) for aluminum (Al), arsenic (As), iron (Fe), silver (Ag) and vanadium (V). Reported results in affected samples which are less than or equal to five times ( $\leq 5X$ ) blank concentrations may be biased high and have been qualified "B" on DSFs.

Recoveries of CRDL standards were low ( $<90\%$ ) for Cr, Pb, mercury (Hg), Tl and zinc (Zn). Low recoveries may indicate negative biases for results detected near detection limits due to an unstable baseline. Reported results less than 2XCRDL and quantitation limits for these analytes in affected samples may be biased low and have been qualified "L" and "UL", respectively, on DSFs.

Recoveries of CRDL standards were high for arsenic (As). High recoveries may indicate positive biases for results detected near detection limits due to an unstable baseline. The "K" qualifier for this outlier for reported results less than 2XCRDL has been superseded by "B" on the DSFs.

The Percent Difference (%D) in the ICP serial dilution analysis was outside control limits ( $>10\%$ ) for potassium (K). Reported results regarding this analyte are estimated and have been qualified "J" on the DSFs.

## **NOTES**

The laboratory reported a CRDL recovery for Hg of zero percent (0%) on Form II (Part 2) - IN. A review of the raw data revealed that the CRDL reading was below the IDL and therefore, reported as a non-detect by the laboratory. The actual instrument reading for the CRDL was used by the reviewer to calculate the Hg CRDL percent recovery. The Form II (Part 2) - IN was amended by the reviewer to reflect the action taken.

The typographical errors noted in the Laboratory Case narrative were corrected by the reviewer.

Data for Case 28712, SDG MC02Z0, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

## **ATTACHMENTS**

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)  
APPENDIX B DATA SUMMARY FORMS  
APPENDIX C CHAIN OF CUSTODY (COC) RECORDS  
APPENDIX D LABORATORY CASE NARRATIVES

DCN:28712IM1.wpd

**APPENDIX A**  
**Glossary of Qualifier Codes**

## GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

### CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

### CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low.  
Actual value is expected to be higher.

[ ] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

### OTHER CODES

Q = No analytical result.

**APPENDIX B**  
**Data Summary Forms**

## DATA SUMMARY FORM: INORGANIC

Page 1 of 2

ORIGINAL  
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Case #: 28712

SDG: MC02Z0

Number of Soil Samples: 0

Site:

ALBEMARLE DUMP #2

Number of Water Samples: 6

Lab.:

CHEMED

Sample Number :		MC02Z0		MC02Z1		MC02Z2		MC02Z3		MC02Z4	
Sampling Location :		STREAM01		STREAM02		STREAM03		680BROAD		HIDBROAD	
Field QC:											
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		11/6/00		11/6/00		11/6/00		11/6/00		11/6/00	
Time Sampled :		12:00		13:45		14:00		16:30		17:00	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRDL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	[52.6]	B	[122]		[82.6]					
ANTIMONY	60										
*ARSENIC	10	[4.4]	B	[9.1]	B	[5.0]	B	[7.6]	B	[5.4]	B
BARIUM	200	[28.9]		[28.3]		[38.5]		[36.8]		[13.9]	
BERYLLIUM	5										
*CADMIUM	5		UL		UL		UL		UL		UL
CALCIUM	5000	5460		[4290]		[3880]		12800		9410	
*CHROMIUM	10		UL		UL		UL		UL		UL
COBALT	50			[0.81]		[0.52]		[0.84]		[3.0]	
COPPER	25			[1.1]				127		[14.0]	
IRON	100	139		280		535		[44.5]	B	[42.0]	B
*LEAD	3		UL		UL		UL		UL		UL
MAGNESIUM	5000	[1290]		[983]		[823]		[1260]		[1030]	
MANGANESE	15	84.4		49.6		120		96.1		18.9	
MERCURY	0.2		UL		UL		UL		UL		UL
*NICKEL	40	[1.3]		[0.90]				[4.0]		[1.2]	
POTASSIUM	5000	[1990]	J	[1840]	J	[1540]	J	[4690]	J	[3080]	J
SELENIUM	5										
SILVER	10	[1.2]	B	[1.3]	B					[0.81]	B
SODIUM	5000	9780		6250		[3130]		[4210]		[3570]	
THALLIUM	10		UL		UL		UL		UL		UL
VANADIUM	50	[0.90]	B	[0.72]	B						
ZINC	20	[15.9]	L	21.6	L	[19.3]	L	62.5		38.2	L

CRDL = Contract Required Detection Limit

\*Action Level Exists

\*SEE NARRATIVE FOR CODE DEFINITIONS

Revised 09/99

Case #: 28712

SDG : MC02Z0

Site :

ALBEMARLE DUMP #2

Lab. :

CHEMED

Sample Number :		MC02Z5									
Sampling Location :		7018BROAD									
Field QC:											
Matrix :		Water									
Units :		ug/L									
Date Sampled :		11/6/00									
Time Sampled :		17:30									
Dilution Factor :		1.0									
ANALYTE	CRDL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200										
ANTIMONY	60										
*ARSENIC	10	[6.7]	B								
BARIUM	200	[67.5]									
BERYLLIUM	5										
*CADMIUM	5		UL								
CALCIUM	5000	8880									
*CHROMIUM	10		UL								
COBALT	50										
COPPER	25	175									
IRON	100	[16.7]	B								
*LEAD	3	13.5									
MAGNESIUM	5000	[2050]									
MANGANESE	15	[11.9]									
MERCURY	0.2		UL								
*NICKEL	40	[2.3]									
POTASSIUM	5000	[2750]	J								
SELENIUM	5										
SILVER	10	[0.84]	B								
SODIUM	5000	6060									
THALLIUM	10		UL								
VANADIUM	50										
ZINC	20	142									

CRDL = Contract Required Detection Limit

\*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

Revised 09/99



## **APPENDIX C**

### **Chain of Custody (COC) Records**



United States Environmental Protection Agency  
Contract Laboratory Program

# Inorganic Traffic Report & Chain of Custody Record (For Inorganic CLP Analysis)

SDG No.

Case No. SDG # MC 220  
28.712

3. Region No. Sampling Co.

3 RAI

5. Date Shipped Carrier

11/7/01 FedEx

Sampler (Name)  
non responsive based on revised scope

Airbill Number  
8246 3177 4040

Sampler Signature  
non responsive based on revised scope

B. Ship To: CHEMED

4. Purpose

Lead  
SF  
PRP  
ST  
FED

Early Action  
CLEM  
PA  
REM  
RI  
SI  
ESI

Long-term Action  
FS  
RD  
RA  
OSM  
NPLD

Chemtech Consulting Group  
Raritan Center  
205 Campus Plaza One  
Edison, NJ 08827

ATTN: Edison, NJ 08827

CLP Sample Numbers (from labels)	A Matrix (from Box 1) Other:	B Conc. Low Med High	C Sample Type: Comp/Grab	D Preservative (from Box 2) Other:	E - RAS Analysis						F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K High Phases			
					Diox. Metals	Total Metals	Cyanide	NO <sub>2</sub> /NO <sub>3</sub>	Fluoride	pH	Conduct.						As	Cd	Cr
MC0220	1	1	1	1	X							3036303	Stream 01	11/6/01 1200	CU351	CU			
MC0221	1	Low	Grab	2	X							3036303	Stream 02	11/6/01 1345	CU352	CU			
MC0222	1	Low	Grab	2	X							3036304	Stream 03	11/6/01 1400	CU353	CU			
MC0223	2	Low	Grab	2	X							3036305	680 Brook	11/6/01 1630	CU354	CU			
MC0224	2	Low	Grab	2	X							3036306	Hick Brook	11/6/01 1700	CU355	CU			
MC0225	2	Low	Grab	2	X							3036307	TWI Brook	11/6/01 1730	CU356	CU			

Shipment for Case Complete? (Y/N)	Page 1 of 1	Sample(s) to be Used for Laboratory QC MC0220	Additional Sampler Signatures	Chain of Custody Seal Number(s)
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## Chain of Custody Record

Relinquished by: (Signature) [Signature]	Date / Time 11/6/01 12:30	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? (Y/N) none	

ORIGINAL  
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Project Code	Station No.	Month/Day/Year	Time	Designator	
				Comp.	Grph.
	104 Brd	11/6/00	1630		
Station Location		Samplers (Signatures)		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>ANALYSES</b> BOD Anions Solids (TSS) (TDS) (SS) COD, TOC, Nutrients Phenolics Mercury Metals <input checked="" type="checkbox"/> Cyanide Oil and Grease Organics GC/MS Priority Pollutants Volatile Organics Pesticides Mutagenicity Bacteriology Remarks: MC02Z3	
Tag No.		Lab Sample No.			
3-3036306					

Project Code	Station No.	Month/Day/Year	Time	Designator	
				Comp.	Grph.
	H. d Brd	11/6/00	1700		
Station Location		Samplers (Signatures)		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>ANALYSES</b> BOD Anions Solids (TSS) (TDS) (SS) COD, TOC, Nutrients Phenolics Mercury Metals <input checked="" type="checkbox"/> Cyanide Oil and Grease Organics GC/MS Priority Pollutants Volatile Organics Pesticides Mutagenicity Bacteriology Remarks: MC02Z4	
Tag No.		Lab Sample No.			
3-3036305					

Project Code	Station No.	Month/Day/Year	Time	Designator	
				Comp.	Grph.
	701 Brd	11/6/00	1730		
Station Location		Samplers (Signatures)		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <b>ANALYSES</b> BOD Anions Solids (TSS) (TDS) (SS) COD, TOC, Nutrients Phenolics Mercury Metals <input checked="" type="checkbox"/> Cyanide Oil and Grease Organics GC/MS Priority Pollutants Volatile Organics Pesticides Mutagenicity Bacteriology Remarks: MC02Z5	
Tag No.		Lab Sample No.			
3-3036304					

ORIGINAL  
(Red)

Project Code	Station No.	Month/Day/Year	Time	Designate	
				Comp.	Grab <input checked="" type="checkbox"/>
Stream 1		11/1/00	12:00		
Station Location		Samples (Signatures)			
Remarks: MC0230		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
		ANALYSES			
		BOD	Anions		
		Solids	(res) (res) (res)		
		COD, TOC, Nutrients			
		Phenolics			
		Mercury			
		Metals			
		Cyanide			
		Oil and Grease			
		Organics GC/MS			
		Priority Pollutants			
		Volatile Organics			
		Pesticides			
		Mutagenicity			
Bacteriology					
Tag No.		Lab Sample No.			
3-3036302					

Project Code	Station No.	Month/Day/Year	Time	Designate	
				Comp.	Grab <input checked="" type="checkbox"/>
Stream 2		11/5/01	13:45		
Station Location		Samples (Signatures)			
Remarks: MC0231		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
		ANALYSES			
		BOD	Anions		
		Solids	(res) (res) (res)		
		COD, TOC, Nutrients			
		Phenolics			
		Mercury			
		Metals			<input checked="" type="checkbox"/>
		Cyanide			
		Oil and Grease			
		Organics GC/MS			
		Priority Pollutants			
		Volatile Organics			
		Pesticides			
		Mutagenicity			
Bacteriology					
Tag No.		Lab Sample No.			
3-3036303					

Project Code	Station No.	Month/Day/Year	Time	Designate	
				Comp.	Grab <input type="checkbox"/>
Stream 3		11/4/00	14:00		
Station Location		Samples (Signatures)			
Remarks: MC0232		Preservative: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
		ANALYSES			
		BOD	Anions		
		Solids	(res) (res) (res)		
		COD, TOC, Nutrients			
		Phenolics			
		Mercury			
		Metals			<input checked="" type="checkbox"/>
		Cyanide			
		Oil and Grease			
		Organics GC/MS			
		Priority Pollutants			
		Volatile Organics			
		Pesticides			
		Mutagenicity			
Bacteriology					
Tag No.		Lab Sample No.			
3-3036307					

ORIGINAL  
(Red)

## **APPENDIX D**

### **Laboratory Case Narrative**

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## COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: CHEMTECH EDISON

Contract: 68-W00-088

Lab Code: CHEMED

Case No.: 28712

SAS No.:

SDG No.: MC02Z0

SOW No.: ILM04.1

## EPA SAMPLE NO.

## Lab Sample ID.

MC02Z0

R1116-01S

MC02Z0D

R1116-01S2

MC02Z0S

R1116-01MS

MC02Z1

R1116-02S

MC02Z2

R1116-03S

MC02Z3

R1116-04S

MC02Z4

R1116-05S

MC02Z5

R1116-06S

Were ICP interelement corrections applied?

Yes/No YES

Were ICP background corrections applied?

Yes/No YES

If yes-were raw data generated before  
application of background corrections?

Yes/No NO

## Comments:

The "E" qualifiers on Form I and IX for Potassium indicate chemical or physical interference effects, which were suspected during that element's analyses only.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee as verified by the following signature.

001

Signature: Name: 

Title:

LAB MANAGER

Date: 11/17/00

**SDG NARRATIVE**

USEPA  
SDG # MC02z0  
Case # 28712  
Contract # 68-W00088  
LAB CODE: CHEMED  
Chemtech Project # R1116

**A. Number of Samples and Date of Receipt**

6 Aqueous Samples were delivered to the laboratory intact on 11/08/00.

**B. Parameters**

Test requested was Metals. This data package contains results for Metals.

**C. Cooler Temp**

Indicator Bottle: Presence/Absence

Cooler Temp: 4.0

**D. Detail Documentation (related to Sample Handling**

Shipping, Analytical Problem, Temp of Cooler etc):

Tag No. 3-3036308 was not on TR for Sample MC02Z0MS/MSD, Sample fail to write on TR if the case was complete or not.

**E. Corrective Action taken for above:**

As per Region 3 reference the tag # on all documents. Case is complete.

**F. Analytical Techniques:**

The analysis of Metals is based on CLP Methodology and Mercury by Method ILM4.0.

**G. QA/QC**

Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample were within Control Limits. Spike Sample recovery met requirements except for lead & Mercury. Serial Dilution met requirements except for the followings: Aluminum, Arsenic, Nickel, Potassium, Silver & Vanadium. Duplicate analyses met requirements except for the Arsenic, Copper, Silver, Vanadium & Zinc. non responsive based on revised scope 12/5/00

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature non responsive based on revised scope

Name: non responsive based on revised scope

Date 11/17/00

Title: QA/QC

0002

non responsive based on revised scope  
11/17/00